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HAWAII AGRICULTURE 2001

Diversified Agriculture Continues to Post Record Returns

Farm level revenue for 2001 dipped 1 percent from the previous year to \$511 million, as the fourth consecutive year of drought, global price declines, and the aftereffects of the September 11 terrorist attack adversely affected farmer returns. Still, the diversified agriculture sector managed to hold its own, rising 1 percent to a record \$357 million, helping to cushion year-to-year declines for sugar and pineapple.

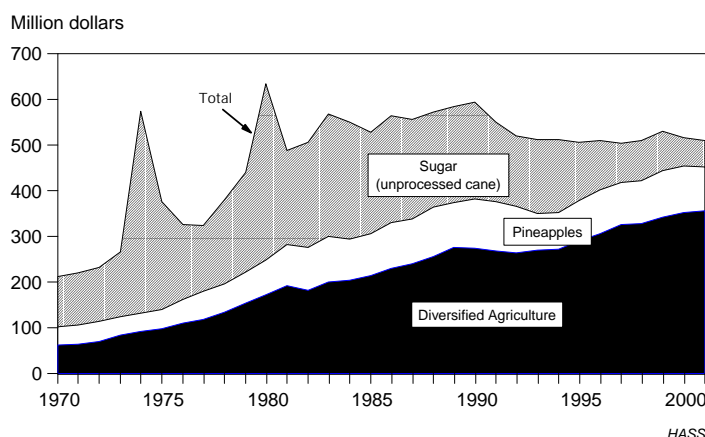
Allowing for the normal gains and losses among diversified commodities, the overall farm revenue for this segment managed a modest gain of 1 percent, and the ninth consecutive annual increase. Highlighting the gains were record years for flowers and nursery products, vegetables and melons, herbs, and seed crops. Macadamia nut revenue also posted a year-to-year gain. Although aquaculture value remained about even with the previous year, the drop in sales resulting from the aftermath of the September 11 terrorist attack prevented that industry from achieving its best year ever. Drought and lower prices took their toll on coffee and cattle output.

The equivalent farm value of pineapple (does not include value added by processing) declined to \$96.3 million. Rainfall remained below normal during most of 2001, resulting in smaller fruit size in some areas. However, favorable market conditions in 2001 allowed utilization of fresh fruit in the extreme ends of availability.

The equivalent farm value of sugarcane (does not include the processed value of raw sugar) slipped to \$57.8 million, 8 percent below the previous year. Less acreage harvested was the primary factor for the decline.

Farm level values shown in this publication are an important measure of production agriculture, but they don't truly reflect the total contribution of agriculture to the State and county economies. For a better understanding of the overall picture, refer to "Agriculture's Contribution to Hawaii's Economy- An Update" (CTAHR Economic Issues EI-3b, Feb. 2002), a publication prepared jointly by the College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, and the Hawaii State Department of Agriculture.

Cash Receipts of Agricultural Commodities, State of Hawaii, 1970-2001



Another Dry Year for Agriculture

Except for scattered showers and tropical storm remnants, weather for 2001 was generally dry. As in the past year, crops such as coffee, macadamia nuts, avocados, and tropical fruits which depend on rainfall for irrigation, made only fair progress. Pastures also suffered from the prolonged lack of soil moisture. Although irrigated crops fared better, some farms were adversely affected by both mandatory and voluntary water conservation restrictions. Despite increased rainfall over the previous year, conditions were generally dry, especially in leeward and central districts.

January-April

A January cold front in the north brought generally fair weather. Conditions were characterized by light showers and mostly cool, dry weather. Light to moderate winds further dried the islands. Water conservation notices were issued to State irrigation users in Waimea, Hawaii. The winter drought continued into early February extending the conservation measures on the Big Island. Although an offshore thunderstorm and a string of low pressure systems brought beneficial showers to the State later in the month, growing conditions were mostly fair, and more rain was needed in all areas. A low pressure system accompanied by a weak cold front returned to the islands in March, bringing clouds and scattered light to moderate showers. Lack of good follow-up showers disrupted the coffee flowering flush in Central Kona. Fruit set was low, and young cherries were dying. Fluctuating sunny and cloudy conditions enhanced disease infections on other crops. April weather was favorable for agriculture during the first week, but returned to fair for the rest of the month. Trade winds were gusty up to 40 mph in exposed areas. Despite sunny days and beneficial showers, soil moisture

remained inadequate, especially on Hawaii and Maui. Coffee, avocado, and other rainfall dependent orchard crops continued to suffer dryness. Pastures were also dry, and showed little growth.

May-September

Variable weather in May brought beneficial showers and warm sunshine. However, heavy irrigation and water conservation restrictions remained necessary in dry areas. Regular spraying was needed to control insects and diseases. The favorable weather continued through June and July. Remnants of Tropical Storm Barbara brought moderate to heavy showers and relief to seriously dry areas. After the storm at the beginning of the month, July's weather turned sunny and dry with light showers falling in windward and some mountain areas. Leeward and central areas remained hot and dry; especially Maui, which did not receive significant rain for weeks. Rainfall dependent crops and pastures remained in poor condition. Remnants of Tropical Storm Dahlia brought temporary relief from dry conditions in early August. Light, scattered showers made heavy irrigation and spraying necessary to maintain crop progress. Crops and pastures were in fair to poor condition throughout the remainder of the month. September trades strengthened to moderate levels and brought hot, humid days with late afternoon and evening showers. Despite increased showers, heavy irrigation remained necessary. The variable weather continued into the end of the month when a weak low pressure trough brought brief windward and mountain showers.

October-December

A strengthening northern high pressure system brought increased

trade winds and some passing showers to windward and mountain areas. Despite stronger trade winds and passing showers, October remained generally dry. Tropical Storm Narda's remnants at the end of the month brought increased windward, mauka showers and stronger trade winds to portions of the State. A thunderstorm dumped heavy rains on East Hawaii at the month's end. Hilo received over 14 inches in nine hours, causing minor flooding in low-lying areas. A weak high pressure system and the remnants of Tropical Storm Octave brought more variable weather in November. Light to moderate trade showers fell mainly on Windward and mountain areas. Trade winds ranged from 15 to 30 mph. During the last two weeks, the weak northern high pressure system diminished showers and weakened winds to 5-15 mph. Spraying for insects and diseases was intensified. Although drier conditions benefitted some crops, orchards and pastures still needed more rainfall. Early December's Kona storm brought the year's first major rain to the State. Up to 19 inches was reported in Ka'u, Hawaii during a 48 hour period. Gusty winds up to 60 mph were also reported. Some flooding occurred in low-lying areas, and orchards reported fruit losses as well as tree and leaf damage. Wet conditions also hindered farm activities. A second major storm at mid-month brought more heavy rains and gusty winds. Farm operations were further hindered and disease incidence increased drastically. However, the two major storms brought much needed rain to all islands and replenished soil moisture levels and severely depleted water supplies. The remainder of the year ended with generally dry conditions and weakening trade winds.

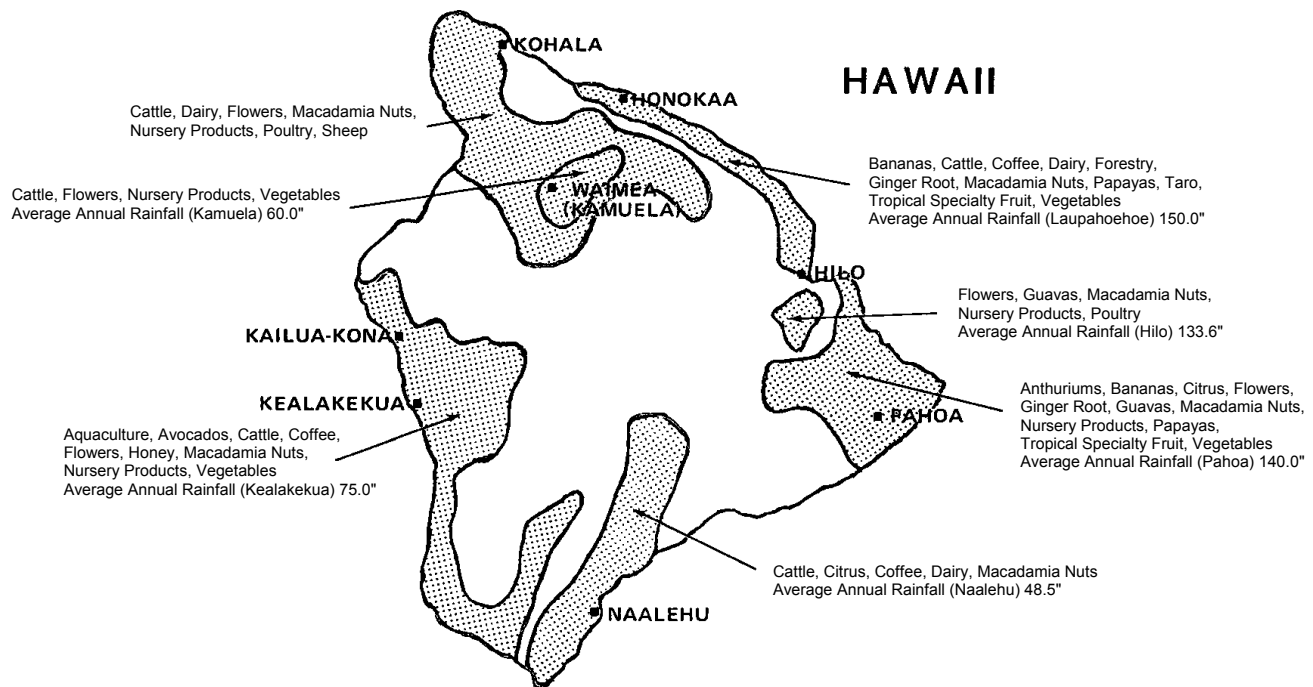
WEATHER: Precipitation, selected stations, State of Hawaii, 2001

STATIONS	Year & normal	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	% Annual normal
ISLAND OF HAWAII															
Hilo International Airport	Normal	9.1	12.9	13.7	12.9	10.0	6.6	9.5	10.9	7.4	11.0	13.8	15.8	133.6	
	2001	2.28	12.47	8.35	12.56	2.94	3.64	6.54	7.90	9.01	13.16	19.90	13.77	112.52	84.2
Kamuela (HI86)	Normal	6.6	6.0	7.9	6.9	4.0	2.2	3.7	4.1	2.2	3.3	5.8	7.3	60.0	
	2001	.89	5.76	2.68	2.13	1.93	1.46	2.76	5.70	2.74	5.55	5.53	3.67	40.80	68.0
Kealahou (HI84)	Normal	4.7	3.4	5.6	6.2	7.7	8.2	8.7	8.3	8.2	6.2	4.4	3.4	75.0	
	2001	.39	1.55	2.17	3.04	3.73	5.72	6.67	5.79	6.02	6.58	6.19	2.35	50.20	66.9
Laupahoehoe (HI80)	Normal	13.5	13.2	19.5	18.9	11.7	6.2	10.0	12.4	6.9	9.3	13.6	14.8	150.0	
	2001	.96	12.94	5.33	13.78	3.25	3.49	5.28	5.45	5.25	15.18	15.34	18.57	104.82	69.9
Pahala (HI85)	Normal	7.7	6.1	6.3	5.0	3.8	2.2	2.1	3.3	3.4	4.2	5.5	5.4	55.0	
	2001	.22	12.98	.99	.75	1.23	1.18	.29	.39	1.30	3.98	19.77	2.84	45.92	83.5
Pahoa (HI83)	Normal	13.9	10.9	14.7	13.9	10.5	7.1	9.8	10.6	9.2	11.5	13.3	14.6	140.0	
	2001	3.15	14.85	8.18	13.81	3.97	3.58	7.98	8.19	6.24	14.39	17.71	12.14	114.19	81.6
ISLAND OF KAUAI															
Anahola (HI48)	Normal	6.8	4.4	6.0	4.6	3.2	1.6	2.5	2.5	2.0	5.1	5.4	5.9	50.0	
	2001	2.60	5.83	.51	--	2.94	2.33	.93	1.29	.52	3.07	9.27	1.58	30.87	61.7
Hanalei (HI45)	Normal	11.3	10.1	14.0	12.7	8.1	5.3	8.6	6.3	4.7	7.0	12.2	9.7	110.0	
	2001	1.96	16.54	1.99	12.40	3.54	8.57	6.16	7.77	6.10	7.28	8.31	6.45	87.07	79.2
Omao (HI51)	Normal	6.9	4.5	5.5	5.2	4.2	3.4	4.7	4.6	3.7	4.7	5.9	6.7	60.0	
	2001	.80	3.88	2.74	3.41	1.61	5.39	3.46	4.55	2.25	3.94	4.95	3.94	40.92	68.2
ISLAND OF MAUI															
Hana (HI61)	Normal	9.5	6.8	9.5	9.0	6.2	3.8	5.6	5.6	5.4	7.0	8.7	6.1	83.2	
	2001	1.05	2.47	2.14	2.29	.93	2.45	3.96	3.58	4.34	5.68	3.96	3.02	35.87	43.1
Kula (HI65)	Normal	4.9	3.7	2.8	2.8	2.1	1.1	1.4	1.9	2.0	1.4	2.5	3.4	30.0	
	2001	.14	2.86	.57	.22	1.06	1.09	.17	.38	.47	.90	6.09	2.76	16.71	55.7
Wailuku (HI66)	Normal	5.2	3.8	3.6	3.0	1.2	.4	.6	.7	.6	1.7	2.9	4.3	28.0	
	2001	.03	1.24	.89	.33	1.42	.41	.31	.99	.26	2.08	--	--	7.96	28.4
ISLAND OF OAHU															
Kahuku (HI09)	Normal	6.3	4.2	5.3	4.0	2.5	1.8	2.2	2.6	2.2	4.0	4.6	5.3	45.0	
	2001	1.18	5.33	2.59	1.66	1.04	4.94	1.85	2.25	.46	3.37	5.20	2.78	32.65	72.6
Waialua (HI04)	Normal	5.6	3.9	3.8	2.8	1.7	.9	1.3	.8	1.1	2.7	4.2	5.0	33.8	
	2001	.64	.78	1.25	.54	.09	1.06	.30	.46	.27	1.29	4.42	2.11	13.21	39.1
Waianae (HI17)	Normal	3.8	2.3	2.5	1.6	.7	.3	.3	.7	.7	1.8	2.0	3.3	20.0	
	2001	.39	.71	2.08	.55	.11	0	0	.18	.08	.44	3.33	.68	8.55	42.8
Waimanalo (HI13)	Normal	8.1	4.9	5.6	4.9	3.1	1.5	1.7	2.0	1.8	4.3	4.9	7.2	50.0	
	2001	1.41	3.75	1.28	.84	.58	.85	.95	--	.70	1.53	5.74	3.19	20.82	41.6

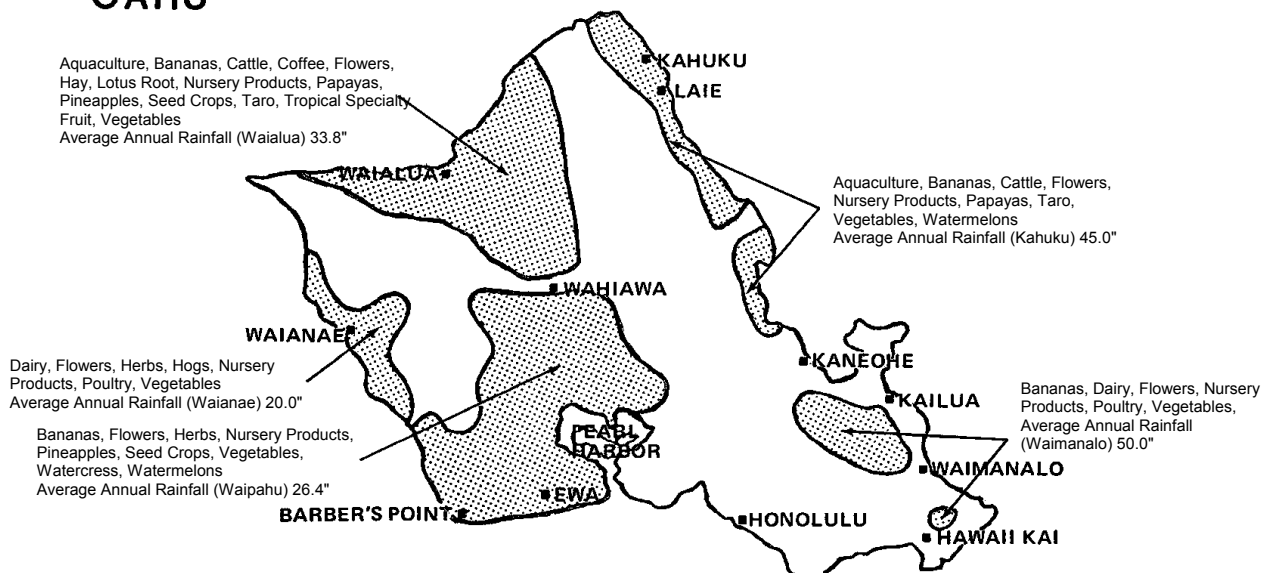
-- = Missing data; incomplete.

Source: U. S. Department of Commerce, National Oceanic and Atmospheric Administration. Most rainfall stations were selected from the National Weather Service's hydronet system of automated gages, and those data have not been quality controlled to date, and therefore is not certified by the National Weather Service.

MAJOR AGRICULTURAL AREAS, STATE OF HAWAII, 2001



OAHU



MAUI

LAHAINA
Coffee, Pineapples, Sugarcane
Average Annual Rainfall (Lahaina) 15.5"

WAILUKU
Cattle, Flowers, Hogs, Nursery Products, Pineapples, Sugarcane
Average Annual Rainfall (Wailuku) 28.0"

KAHULUI

KIHEI
Cattle, Seed Crops, Sheep
Average Annual Rainfall (Kihei) 13.8"

KULA
Bananas, Flowers, Hogs, Papayas, Tropical Specialty Fruit
Average Annual Rainfall (Kula) 30.0"

HANA
Bananas, Cattle, Flowers, Herbs, Hogs, Nursery Products, Tropical Specialty Fruit, Vegetables
Average Annual Rainfall (Hana) 83.2"

Aquaculture, Bananas, Cattle, Coffee, Flowers,
Hay, Hogs, Nursery Products, Papayas,
Seed Crops, Vegetables
Average Annual Rainfall (Molokai Airport) 26.5"

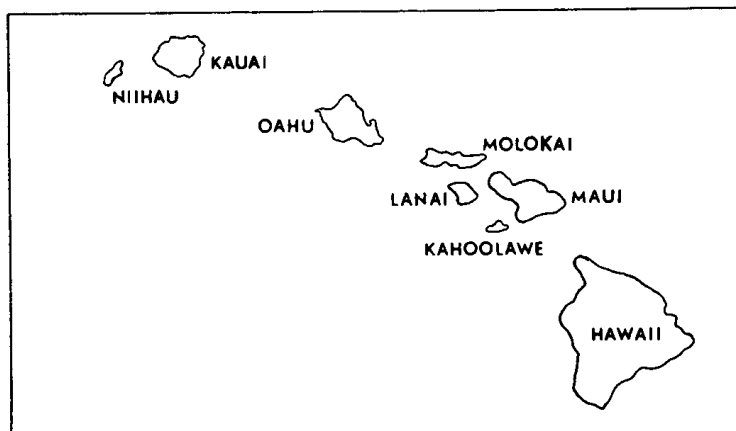
Map of Lanai showing the location of Lanai City and the distance to Kaula Airport (26.5 miles).

Bananas, Cattle, Guavas, Papayas,
Taro, Tropical Specialty Fruit
Average Annual Rainfall (Hanalei) 110.0"

Bananas, Cattle, Flowers, Nursery Products,
Sugarcane, Vegetables
Average Annual Rainfall (Wailua) 84.2"

Aquaculture, Banana, Cattle, Coffee, Flowers, Hogs, Honey, Nursery Products, Seed Crops, Sugarcane, Taro
Average Annual Rainfall (Kekaha) 22.4"

KAUAI



SUMMARIES

Top 20 commodities, State of Hawaii, 2000-2001

Commodity ¹	Rank		Value of production	
	2000	2001	2000	2001
	--- Number ---		--- 1,000 dollars ---	
Pineapples (fresh equivalent)	1	1	101,530	96,337
Sugarcane (unprocessed)	2	2	62,600	57,800
Seed crops	3	3	32,200	32,800
Macadamia nuts	4	4	29,500	32,480
Milk	5	5	28,102	26,546
Coffee	6	6	23,055	19,600
Cattle	7	7	19,204	18,007
Papayas	8	8	16,007	14,598
Bananas	10	9	10,440	10,640
Algae	13	10	8,447	9,684
Eggs	9	11	10,598	9,640
Tomatoes	12	12	8,580	9,275
Dracaena (potted)	16	13	6,648	8,443
Palms (potted)	14	14	8,434	8,280
Ginger root	11	15	8,910	8,100
Anthuriums	15	16	7,357	6,904
Dendrobium, pots	17	17	6,528	6,608
Hogs	18	18	4,425	4,546
Onions, dry	22	19	3,053	4,050
Basil	19	20	3,600	3,520

NA = Not available.

¹ Floriculture categories include only growers with total sales of \$10,000 or more.

Farm values, State of Hawaii, 1982-2001

Year	Sugar (unprocessed cane)	Pineapples (fresh equivalent)	Diversified agriculture ¹	Total
	1,000 dollars			
1982	230,800	94,364	182,104	507,268
1983	266,900	100,376	201,138	568,414
1984	256,200	89,928	204,389	550,517
1985	222,400	90,530	215,719	528,649
1986	233,800	99,720	231,197	564,717
1987	218,000	99,286	240,012	557,298
1988	209,900	107,402	256,660	573,962
1989	210,300	98,310	276,438	585,048
1990	213,800	106,365	275,789	595,954
1991	174,900	107,775	268,707	551,382
1992	153,700	102,100	264,427	520,227
1993	163,000	79,850	271,094	513,944
1994	160,100	78,890	273,826	512,816
1995	127,700	87,360	291,632	506,692
1996	108,100	95,914	307,329	511,343
1997	85,500	91,721	327,484	504,705
1998	87,400	92,776	329,886	510,062
1999	86,800	101,448	342,846	531,094
2000	62,600	101,530	352,870	517,000
2001	57,800	96,337	356,935	511,072

¹ Aquaculture included beginning 1993.

Diversified agriculture ranked by value, State of Hawaii, 2000-2001

Commodity	Rank		Value of production			Percent of diversified agriculture	
	2000	2001	2000	2001	Year-to-year percent change	2000	2001
	--- Number ---		----- 1,000 dollars -----			----- Percent -----	
Flowers and nursery products	1	1	82,684	87,976	+6	23.4	24.6
Vegetables and melons ¹	2	2	59,159	62,043	+5	16.8	17.4
Seed crops	3	3	32,200	32,800	+2	9.1	9.2
Macadamia nuts	5	4	29,500	32,480	+10	8.4	9.1
Fruits (excluding pineapples)	4	5	31,364	30,190	-4	8.9	8.5
Milk	6	6	28,102	26,546	-6	8.0	7.4
Aquaculture	8	7	22,170	22,200	0	6.3	6.2
Coffee	7	8	23,055	19,600	-15	6.5	5.5
Cattle	9	9	19,204	18,007	-6	5.4	5.0
Eggs	10	10	10,598	9,640	-9	3.0	2.7
Hogs	11	11	4,425	4,546	+3	1.3	1.3
Other livestock and crops			10,409	10,907	+5	2.9	3.1
Total			352,870	356,935	+1	100.0	100.0

¹ Includes ginger root and herbs.

SUMMARY: Acreage in crop and total farm acreage, by counties, 1997-2001

Year	Sugarcane	Pineapples ¹	Vegetables and melons ^{2 3}	Fruits (excluding pineapples)	Coffee	Macadamia nuts	All other crops ⁴	Total farm acreage ⁵
<i>1,000 acres</i>								
State ⁶								
1997	⁷ 67.8	19.9	6.5	8.0	7.0	20.2	13.3	1,440
1998	67.6	21.0	6.6	7.6	7.4	20.2	15.9	1,440
1999	67.0	21.0	8.2	8.0	7.7	19.9	⁷ 14.9	1,440
2000	60.0	20.7	6.4	7.1	7.9	18.4	7.3	1,440
2001	46.0	20.1	6.6	7.1	8.0	18.0	8.9	1,440
Counties:								
Hawaii								
1997	0	*	2.1	5.6	2.5	⁸	1.7	870
1998	0	*	2.1	4.8	2.8	⁸	2.0	870
1999	0	*	2.3	4.9	3.2	⁸	⁷ 1.9	870
2000	0	*	1.8	4.1	3.3	⁸	1.7	870
2001	0	*	1.9	4.5	3.4	⁸	2.1	870
Honolulu								
1997	0	10.8	2.9	1.3	⁸	⁸	8.3	80
1998	0	11.4	2.8	1.6	⁸	⁸	11.0	80
1999	0	11.9	4.3	1.8	⁸	⁸	⁷ 10.4	80
2000	0	9.1	3.1	1.7	⁸	⁸	2.6	80
2001	0	11.0	3.4	1.5	⁸	⁸	3.4	80
Kauai								
1997	⁷ 25.4	*	.1	.8	⁸	⁸	1.6	200
1998	24.7	*	.1	.9	⁸	⁸	1.0	200
1999	23.7	*	.2	1.0	⁸	⁸	1.1	200
2000	23.1	*	.2	1.0	⁸	⁸	1.3	200
2001	10.6	*	.1	.8	⁸	⁸	1.3	200
Maui								
1997	⁷ 42.4	9.1	1.4	.3	⁸	⁸	1.7	290
1998	42.9	9.6	1.6	.3	⁸	⁸	1.9	290
1999	43.3	9.1	1.4	.3	⁸	⁸	⁷ 1.5	290
2000	36.9	11.6	1.3	.3	⁸	⁸	1.7	290
2001	35.4	9.1	1.2	.3	⁸	⁸	2.1	290

* = Less than 50 acres.

¹ Land used for pineapple.

² Harvested acreage.

³ Includes ginger root.

⁴ Includes taro, seed corn, feed and forage crops (excluding pineapple feed products), flowers, foliage and nursery products.

⁵ Includes land not in crop and pasture such as farm house lots, roads, woodlots, etc.

⁶ Sum of county estimates may not add to State total due to rounding.

⁷ Revised.

⁸ Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

SUMMARIES

SUMMARY: Number of crop farms, by counties, 1997-2001

Year	Sugarcane	Pineapples ¹	Vegetables and melons	Fruits (excluding pineapples)	Coffee	Macadamia nuts	Taro	Flowers and nursery products
State								
1997	4	15	1,000	1,043	585	800	160	670
1998	4	15	880	1,515	610	800	180	745
1999	4	15	1,020	1,373	650	750	190	765
2000	3	15	580	1,254	670	650	185	735
2001	2	15	575	1,059	700	650	170	790
Counties:								
Hawaii								
1997	0	6	440	704	575	²	85	312
1998	0	5	432	912	600	²	100	355
1999	0	5	600	805	635	²	100	355
2000	0	5	250	705	650	²	85	335
2001	0	6	270	585	675	²	60	360
Honolulu								
1997	0	2	400	129	²	²	10	202
1998	0	2	280	186	²	²	11	205
1999	0	2	230	174	²	²	12	225
2000	0	2	160	162	²	²	15	205
2001	0	2	160	142	²	²	15	220
Kauai								
1997	2	3	55	124	²	²	50	50
1998	2	3	54	155	²	²	55	40
1999	2	3	45	143	²	²	65	35
2000	2	3	50	156	²	²	70	50
2001	1	5	45	139	²	²	70	60
Maui								
1997	2	4	105	86	²	²	15	106
1998	2	5	114	262	²	²	14	145
1999	2	5	145	251	²	²	13	150
2000	1	5	120	231	²	²	15	145
2001	1	2	100	193	²	²	25	150

¹ Includes specialty pineapple.

² Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

SUMMARIES

SUMMARY: Number of livestock operations and total number of farms, by counties, 1997-2001

Year	Cattle ¹	Hogs	Milk	Eggs	Honey	Total (non-duplicated) ²
State						
1997	830	250	50	55	23	5,500
1998	830	250	50	55	29	5,500
1999	800	230	50	55	28	5,500
2000	800	230	50	55	33	5,500
2001	800	230	50	55	30	5,300
Counties:						
Hawaii						
1997	480	90	27	25	14	3,300
1998	480	80	27	26	18	3,300
1999	470	70	28	28	14	3,300
2000	470	70	28	28	17	3,300
2001	460	70	28	28	14	3,200
Honolulu						
1997	50	70	10	19	³	900
1998	50	80	10	17	³	900
1999	60	70	10	15	³	900
2000	60	70	10	15	³	900
2001	60	70	10	15	³	800
Kauai						
1997	120	30	8	4	³ 9	500
1998	120	40	8	4	³ 11	500
1999	100	30	8	4	³ 14	500
2000	100	30	8	4	³ 16	500
2001	110	30	8	4	³16	500
Maui						
1997	180	60	5	7	³	800
1998	180	50	5	8	³	800
1999	170	60	4	8	³	800
2000	170	60	4	8	³	800
2001	170	60	4	8	³	800

¹ Includes beef, dairy, and dairy replacement operations.

² Based on farm definition of \$1,000 or more of agricultural sales.

³ Honolulu and Maui combined with Kauai to avoid disclosure of individual operations.

SUMMARIES

SUMMARY: Value of crop sales, by counties, 1997-2001

Year	Sugar (unprocessed cane)	Pineapples (fresh equivalent)	Vegetables, ginger root, herbs, and melons	Fruits (excluding pineapples)	Coffee (parchment)
<i>1,000 dollars</i>					
State					
1997	85,500	91,721	46,271	29,564	28,200
1998	87,400	92,776	51,149	24,530	24,700
1999	86,800	101,448	56,438	28,525	21,000
2000	62,600	101,530	59,159	31,364	23,055
2001	57,800	96,337	62,043	30,190	19,600
Counties:					
Hawaii					
1997	0	*	17,435	21,018	16,245
1998	0	*	16,249	14,672	16,100
1999	0	*	18,569	15,546	9,300
2000	0	*	17,910	17,522	15,200
2001	0	*	17,743	18,724	13,175
Honolulu					
1997	0	63,426	16,224	4,814	4
1998	0	64,363	22,098	6,487	4
1999	0	73,123	27,419	³ 8,534	4
2000	0	72,085	29,982	8,985	4
2001	0	69,222	32,601	7,538	4
Kauai					
1997	31,600	*	850	2,596	4
1998	28,700	*	1,047	2,320	4
1999	26,600	*	931	3,389	4
2000	18,700	*	1,446	3,755	4
2001	12,900	*	1,574	3,007	4
Maui					
1997	53,900	28,295	11,762	1,136	4
1998	58,700	28,413	11,755	1,051	4
1999	60,200	28,325	9,519	1,056	4
2000	43,900	29,445	9,821	1,102	4
2001	44,900	27,115	10,125	921	4

See footnotes at end of table.

Continued

SUMMARY: Value of crop sales, by counties, 1997-2001 -- Continued

Year	Macadamia nuts (in-shell)	Taro	Seed crops	Flowers and nursery products ¹	Total crops ²
<i>1,000 dollars</i>					
State					
1997	43,500	2,805	25,150	66,655	420,306
1998	37,375	3,180	25,300	73,207	420,734
1999	37,855	3,604	30,500	75,725	443,111
2000	29,500	3,710	32,200	82,684	426,582
2001	32,480	3,392	32,800	87,976	424,057
Counties:					
Hawaii					
1997	⁴	698	⁴	34,501	130,737
1998	⁴	627	⁴	39,153	121,676
1999	⁴	632	⁴	42,462	121,939
2000	⁴	506	⁴	47,499	128,161
2001	⁴	443	⁴	51,283	134,466
Honolulu					
1997	⁴	⁴	⁴	22,131	109,072
1998	⁴	⁴	⁴	23,743	124,630
1999	⁴	⁴	⁴	21,865	142,407
2000	⁴	⁴	⁴	24,001	145,784
2001	⁴	⁴	⁴	24,916	145,372
Kauai					
1997	⁴	1,657	⁴	1,804	59,425
1998	⁴	1,976	⁴	1,360	49,612
1999	⁴	2,236	⁴	1,547	53,390
2000	⁴	2,520	⁴	1,266	40,286
2001	⁴	2,258	⁴	1,911	35,359
Maui					
1997	⁴	⁴	⁴	8,219	121,072
1998	⁴	⁴	⁴	8,951	124,816
1999	⁴	⁴	⁴	9,851	125,375
2000	⁴	⁴	⁴	9,918	112,351
2001	⁴	⁴	⁴	9,866	108,860

* = Less than \$50,000.

¹ Flowers, foliage, and nursery products.

² Total crop values shown for individual counties are actual. Sum of individual commodities may not add to total. Forage crops' and Forest product's value combined and included in total crop value.

³ Revised.

⁴ Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

SUMMARIES

SUMMARY: Value of livestock sales, total value of crop, livestock sales, aquaculture, and government payments, by counties, 1997-2001

Year	Cattle ¹	Hogs ¹	Milk	Eggs	Total livestock ²	Aquaculture	Total crops, livestock and aquaculture ³	Government payments ⁴
<i>1,000 dollars</i>								
State								
1997	14,323	4,902	29,479	12,986	67,799	16,600	504,705	554
1998	16,861	5,235	33,293	11,220	72,708	16,620	510,062	23
1999	16,806	5,072	31,270	10,803	69,881	18,102	531,094	820
2000	19,204	4,425	28,102	10,598	68,248	22,170	517,000	11,927
2001	18,007	4,546	26,546	9,640	64,815	22,200	511,072	3,860
Counties:								
Hawaii								
1997	9,658	404	5	5	19,078	13,380	163,195	NA
1998	11,312	420	5	5	20,846	13,383	155,905	NA
1999	12,363	569	5	5	22,531	13,377	157,847	NA
2000	14,138	475	5	5	26,079	16,009	170,249	NA
2001	13,438	456	5	5	25,867	16,198	176,531	NA
Honolulu								
1997	581	3,036	19,204	10,002	34,909	2,120	146,101	NA
1998	514	3,451	21,838	8,193	36,189	2,100	162,919	NA
1999	551	3,143	23,300	7,821	36,917	2,333	181,657	NA
2000	556	2,637	19,387	7,471	31,920	2,985	180,689	NA
2001	604	2,882	18,920	6,666	31,018	2,815	179,205	NA
Kauai								
1997	1,082	454	5	5	4,000	5	63,645	NA
1998	1,394	539	5	5	5,116	5	54,979	NA
1999	1,027	466	5	5	4,543	5	59,731	NA
2000	1,280	378	5	5	3,853	5	46,321	NA
2001	1,527	369	5	5	2,511	5	40,464	NA
Maui								
1997	3,003	1,008	5	5	9,813	5	⁶ 131,765	NA
1998	3,641	825	5	5	10,557	5	136,259	NA
1999	2,865	894	5	5	5,890	5	131,859	NA
2000	3,230	935	5	5	6,396	5	119,741	NA
2001	2,438	839	5	5	5,419	5	114,872	NA

NA = Not available.

¹ Excludes interfarm sales; includes out-of-State sales of slaughter cattle and feeder calves.

² Sum of individual commodities may not add to total. Includes sheep, wool, turkeys, horses, honey, beeswax, broilers, and chickens.

³ Total includes aquaculture beginning 1994.

⁴ Includes all government payments, such as Agricultural Conservation Program, Cattle Indemnity Payment Program, Dairy Indemnity Payment Program, Emergency Conservation Program, Forestry Incentives Program, Emergency Feed Program, wool payments, and sugar support.

⁵ Data not shown separately to avoid disclosure of individual operations but combined and included in the State total.

⁶ Revised.

FOOD EXPENDITURES

U.S. Food Expenditures by families and individuals, selected years, 1929-2001

Year	Disposable personal income	Expenditures for food					
		At home ¹		Away from home ²		Total ³	
	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Percent</i>	<i>Billion dollars</i>	<i>Percent</i>	<i>Billion dollars</i>	<i>Percent</i>
1929	83.2	16.9	20.3	2.6	3.1	19.5	23.5
1934	52.7	11.1	21.1	1.7	3.2	12.8	24.3
1939	71.4	13.0	18.1	2.3	3.2	15.2	21.3
1944	148.3	22.1	14.9	5.1	3.4	27.2	18.4
1949	191.1	34.3	17.9	7.8	4.1	42.0	22.0
1954	264.5	42.4	16.0	9.3	3.5	51.7	19.5
1959	351.2	50.1	14.3	12.1	3.5	62.3	17.7
1964	463.0	55.5	12.0	15.7	3.4	71.2	15.4
1969	675.0	69.0	10.2	23.4	3.5	92.3	13.7
1974	1,072.3	107.3	10.0	38.5	3.6	145.8	13.6
1979	1,808.2	164.0	9.1	76.9	4.3	240.9	13.3
1984	2,887.6	224.0	7.8	121.9	4.2	345.8	12.0
1989	4,016.3	285.1	7.1	175.2	4.4	460.3	11.5
1994	5,165.4	339.1	6.6	217.2	4.2	556.3	10.8
1999	6,618.0	412.3	6.2	270.6	4.1	682.9	10.3
2001	7,417.3	440.4	5.9	298.4	4.0	738.9	10.0

¹ Food purchases from grocery stores and other retail outlets, including purchases with food stamps and WIC vouchers and food produced and consumed on farms (valued at farm prices) because the value of these foods is included in personal income. Excludes government-donated foods.

² Purchases of meals and snacks by families and individuals, and food furnished to employees since it is included in personal income. Excludes food paid for by government and business, such as donated foods to schools, meals in prisons and other institutions, and expense-account meals.

³ Total may not add due to rounding.

Source: Economic Research Service, U.S. Department of Agriculture.

RECORD HIGHS AND LOWS

Record highs and lows for selected items, State of Hawaii

Item	Unit	Record high		Record low		Year estimate started
		Quantity	Year ¹	Quantity	Year ¹	
Anthuriums						
Area in production	1,000 sq. ft.	20,908	1983	7,013	1964	1964
Total sold	1,000 dozs.	2,532	1980	216	1959	1959
Price ²	\$/doz.	9.09	1997	.73	1966	1959
Avocados						
Harvested	Acres	330	1986	90	1975	1946
Production	1,000 lbs.	1,600	1982	400	1996	1946
Price ²	¢/lb.	60.0	1999	6.1	1959	1946
Bananas						
Harvested	Acres	1,550	2000	550	1977	1946
Production	1,000 lbs.	29,000	2000	4,470	1983	1946
Price ²	¢/lb.	41.0	1992	4.6	1946	1946
Cabbage, Head						
Harvested	Acres	740	1947	370	1971	1946
Production	1,000 lbs.	15,750	1989	6,800	1953	1946
Price ²	¢/lb.	22.0	2001	3.0	1959	1946
Coffee						
Harvested	Acres	6,800	2000	1,650	1985	1946
Production	1,000 lbs.	18,496	1957	990	1982	1946
Price ²	¢/lb.	390.0	1989	17.8	1946	1946
Foliage, potted (indoor)						
Sales (value)	\$1,000	19,236	2001	171	1972	1972
Ginger Root						
Harvested	Acres	360	2001	11	1974	1946
Production	1,000 lbs.	18,000	2001	352	1974	1946
Price ²	¢/lb.	92.3	1982	16.2	1949	1946
Guavas						
Harvested	Acres	1,040	1990	60	1957	1955
Production	1,000 lbs.	24,300	1990	1,737	1957	1955
Price ²	¢/lb.	15.0	1990	3.1	1956	1955
Macadamia nuts						
Harvested	Acres	19,300	1995	830	1953	1946
Production	1,000 lbs.	58,000	1997	630	1946	1946
Price ²	¢/lb.	90.0	1988	15.2	1946	1946
Papayas						
Harvested	Acres	2,650	1985	320	1952	1946
Production	1,000 lbs.	80,500	1984	5,525	1947	1946
Price ²	¢/lb.	48.9	1997	3.2	1946	1946

See footnotes at end of table.

Continued

RECORD HIGHS AND LOWS

Record highs and lows for selected items, State of Hawaii -- Continued

Item	Unit	Record high		Record low		Year estimate started
		Quantity	Year ¹	Quantity	Year ¹	
Pineapples						
Total in crop	Acres	76,700	1957	19,900	1997	1946
Production	1,000 tons	1,048	1955	323	2001	1950
Value (farm)	\$1,000	107,775	1991	29,700	1951	1950
Sugar³						
Harvested	Acres	145,000	1933	19,300	2001	1909
Yield/acre (sugar)	Tons/acre	12.76	2001	4.81	1910	1909
Production (raw sugar)	1,000 tons	1,234	1966	301	2000	1909
Price ² (sugar)	\$/Ton	633.00	1974	52.00	1940	1909
Taro						
Harvested	Acres	1,020	1948	320	1980	1946
Production	1,000 lbs.	14,195	1948	5,440	1983	1946
Price ²	¢/lb.	53.0	2001	3.1	1949	1946
Tomatoes						
Harvested	Acres	600	1950	150	1972	1946
Production	1,000 lbs.	17,500	2001	3,300	1972	1946
Price ²	¢/lb.	65.0	1990	9.1	1947	1946
Watermelons						
Harvested	Acres	870	1950	125	1979	1946
Production	1,000 lbs.	20,400	1995	1,130	1979	1946
Price ²	¢/lb.	25.7	1981	6.4	1955	1946
Cattle and calves						
Jan. 1 inventory	Head	249,000	1971	130,000	1946	1946
Production (lv. wgt.)	1,000 lbs.	64,750	1989	25,470	1953	1946
Price ²	\$/cwt.	57.50	1993	12.30	1946	1946
Hogs and pigs						
Dec. 1 inventory	Head	72,000	1965	26,000	2000	1960
Production (lv. wgt.)	1,000 lbs.	13,159	1978	5,425	2001	1960
Price ²	\$/cwt.	83.80	2001	29.50	1964	1960
Milk						
Marketings	Million lbs.	157.1	1988	65.2	1946	1946
Production per cow	lbs./cow	14,494	1998	8,750	1960	1960
Price ²	\$/cwt.	26.50	1999	6.75	1946	1946
Eggs						
Layers Dec. 1	Head	1,037,000	1974	302,000	1950	1950
Production	Million eggs	229.3	1979	120.0	1958	1958
Price ²	¢/doz.	90.6	1997	39.2	1968	1958

¹ In case of a tie, the most recent year was used.

² Prices are annual or crop-year average.

³ Primary data source, Hawaiian Sugar Planters' Association.

AGRICULTURE'S CONTRIBUTIONS TO HAWAII'S ECONOMY, 2000

If you inquire about the size of a condominium unit, one person might respond by stating the number of bedrooms, bathrooms, and associated parking stalls. Alternatively, another might state the square-foot area of its interior area and lanai. Both descriptions convey useful but different information.

Likewise, when we describe the contribution of agriculture to Hawaii's economy, we can portray it in several ways. The actual estimates may vary depending on what is defined as "agriculture" and on the methodology applied to develop the estimates. Here, we define agriculture as including farm production, forestry, fisheries, agricultural services, and food processing, as well as the related distribution margins (transportation, wholesale, and retail) used in delivering agricultural products and services. Then, we summarize and compare three measures of contribution--sales, value added (GSP), and employment--for three benchmark years: 1992, 1997, and 2000. (For more detail on this subject, see CTAHR publication EI-3, *Agriculture's Contribution to Hawaii's Economy--An Update*, available at <www.ctahr.hawaii.edu>).

Agriculture sales

Sales value is the most common measure of economic activities. It includes the farmgate value routinely reported by the Hawaii Department of Agriculture. Total agriculture sales (farm production, agricultural service, forestry and fisheries, and food processing) decreased from \$2.14 billion in 1992 to \$1.87 billion in 1997 but rebounded to \$1.94 value declined sharply by 10% annually during the 1992-2000 period, pineapple sales value remained stable at \$102 million after a slight decline in 1997. The continual decrease in sugarcane sales value is largely offset by the tremendous growth in sales value of diversified agriculture (including seed crops, coffee, macadamia nuts, fruits, vegetables, flowers, and nursery products), which increased at an annual rate of 3.8% between 1992 and 2000. Reflecting this trend, the sales value of diversified agriculture jumped from just over 50% of total farm production in 1992 to almost 70% in 2000. Diversified agriculture posted record high sales of \$357 million in 2000.

Value added--the contribution to GSP

An industry's gross state product (GSP) is the value added in production contributed by labor and property. It is equivalent to the value of production minus the value of intermediate goods that producers buy from other producers. Hawaii's economy as measured by total GSP decreased slightly at an annual rate of 0.8% during the 1992-1997 period, but it rebounded at a yearly rate of 1.7% from 1997 to 2000. Agriculture's GSP likewise decreased during the 1992-1997 period, at a higher annual rate of 2.3%, but it came back strongly from 1997 to 2000 with a robust annual rate of increase of 2.5%. During this latter period, agriculture's contribution to Hawaii's economy had a higher rate of growth than the other sectors combined. Agriculture,

including its distribution margins, contributes 3.1% of Hawaii's total GSP--a fairly constant share since 1992.

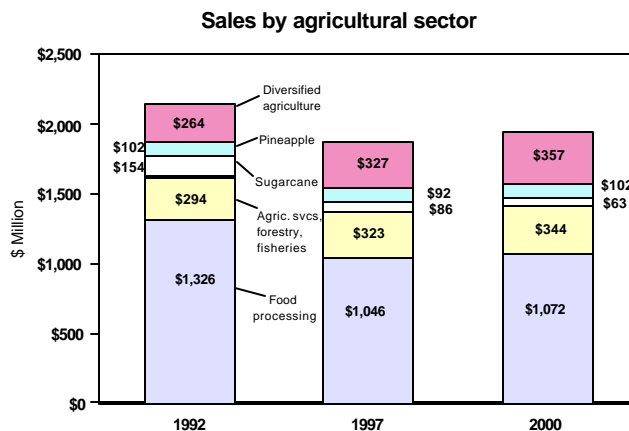
Agriculture's contribution to employment

Employment (the number of full and part-time jobs) provides another good indicator in measuring the contribution of an industry to the economy. In 1992, agriculture contributed 4.2% of total employment in the state, but it declined slightly to 3.7% in 1997, before reversing the trend and rising to 3.8% in 2000. When distribution margins are included, agriculture in 2000 contributed over 38,000 jobs, or 5.0% of the total statewide employment.

Alternate methodology

The U.S. Department of Agriculture's Economic Research Service (USDA-ERS) also estimates the impact of agriculture in Hawaii. ERS uses the national input-output table to assess the total economic activity (in terms of value added, employment, and output) in providing food, clothing, tobacco, flowers, and other agricultural products to the final consumers. By this measure, in 1997 the estimated total contribution of Hawaii's agriculture in terms of value added was \$4.72 billion and employment was 114,431 jobs; these correspond to 12.3% of Hawaii's total value added and 15.4% of state employment¹. These estimates are obviously higher than those presented above, primarily due to the much-expanded definition of agriculture used by ERS.

¹ Dr. William Edmondson, ERS-USDA, provided the 1997 estimates, the most recent available.



FARM FINANCIAL INDICATORS

Farm Business Balance Sheet, State of Hawaii, December 31, 1996-99

	1996	1997	1998	1999
<i>Thousand dollars</i>				
Farm assets	3,627,681	3,552,630	¹ 3,766,429	3,643,782
Farm debt ²	233,660	250,756	264,786	257,846
Real estate	136,728	145,236	156,906	149,929
Nonreal estate	96,932	105,520	107,880	107,917
Equity	3,394,021	3,301,874	¹ 3,501,643	3,385,936
Ratio:				
Debt/equity	6.9	7.6	¹ 7.6	7.6
Debt/assets	6.4	7.1	¹ 7.0	7.1

¹ Revised.

² Excludes debt for nonfarm purposes.

Source: Economic Research Service, USDA.

Farm Financial Indicators - value added to the Hawaii economy by the agricultural sector via the production of goods and services, 1997-2001

	1997	1998	1999	2000	2001
<i>Thousand dollars</i>					
Final crop output	423,047	423,017	439,925	429,831	419,601
Final animal output	93,303	87,687	84,254	85,149	92,875
Services and forestry	31,829	31,936	32,811	33,845	33,191
Final agricultural sector output ¹	548,179	542,640	556,990	548,825	545,667
less: Purchased inputs	196,481	188,626	189,899	194,503	199,208
Farm origin	42,685	39,739	37,046	36,446	34,301
Manufactured inputs	69,959	63,452	63,676	68,787	71,005
Other purchased inputs	83,837	85,435	89,177	89,270	93,902
plus: Net government transactions	(6,936)	(7,315)	(6,328)	4,521	(3,623)
Gross value added	344,763	346,698	360,763	358,843	342,836
less: Capital consumption	37,105	37,268	37,361	37,923	37,617
Net value added ¹	307,658	309,430	323,402	320,920	305,219
less: Payments to stakeholders	192,314	201,084	220,100	217,527	211,322
Employee compensation (total hired labor)	156,364	165,848	186,121	182,430	177,034
Net rent received by nonoperator landlords	16,410	15,312	14,031	14,574	14,190
Real estate and nonreal estate interest	19,540	19,924	19,948	20,523	20,098
Net farm income ¹	115,344	108,346	103,302	103,393	93,897

¹ Value of agricultural sector production is the gross value of the commodities and services produced within a year. Net value-added is the sector's contribution to the Hawaii economy and is the sum of the income from production earned by all factors-of-production. Net farm income is the farm operators' share of income from the sector's production activities. The concept presented is consistent with that employed by the Organization for Economic Cooperation and Development.

Source: Economic Research Service/USDA. E-Mail: rogers@ers.usda.gov. Revised: July 30, 2001.